UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,943	09/12/2003	Neil Birkett	9931-0040	8373

73552 7590 04/01/2008

Stolowitz Ford Cowger LLP
621 SW Morrison St
Suite 600
Portland, OR 97205

EXAMINER	
PANWALKAR, VINEETA S	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
04/01/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/661,943	BIRKETT ET AL.	
	Examiner	Art Unit	
	VINEETA S. PANWALKAR	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 11-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 11-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see remarks, filed 12/17/07, with respect to the rejection(s) of claim(s) 7 and 15 under 35 U.S.C. 103 (a) concerning the mapping to PSK constellation have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Katoh et al. (US 6526107 B1), hereinafter, Katoh and Hennenhoefer et al. (US 2002/0083474 A1), hereinafter, Hennenhoefer.

1a. However, regarding claims 1, 7, 11, 15, 19 and 21, applicant argues that applicant's own admitted prior art (hereinafter, AOAPA) does not disclose "removing direct current (DC) offsets from said I and Q baseband signals" by stating that the applicants made no general admission that a person of skill in art would require DC offset cancellation in any circumstance. However, it is pointed out that on page 7, in paragraph [00018], the specification states "As those in the art will understand, one method of offset cancellation involves exploiting the idle time intervals in digital wireless standards to carry out offset cancellation". This is taken as admission that a person of skill in art would indeed require DC offset cancellation and that AOAPA even discloses of a known method for doing so and hence that part of the rejection has been maintained.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2 and 12 recite the limitation "the performing amplitude normalization" in lines 1 and 2 of the claims. There is insufficient antecedent basis for this limitation in the claim. Claims 3-6 and 13, 14 are rejected under 35 U.S.C. 112, second paragraph as being dependent on claims 2 and 12.

Claims 2 and 12 have been rejected below based on the assumption that the 35 U.S.C. 112, second paragraph rejection will be overcome.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and

invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 7, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over previously cited Yang et al. (US 2002/0168034 A1, hereinafter Yang), in view of AOAPA (previously cited) and Katoh.

3a. Regarding claims 1 and 15, 16 Yang discloses in a digital wireless receiver (paragraph [004]), a method of detecting the presence of a data packet (Paragraph [0048], wherein burst detection is interpreted as claimed packet detection) in a received radio frequency (RF) signal comprising the steps of:

- down-converting said RF signal into in-phase (I) and quadrature (Q) baseband signals (Fig. 3 and paragraphs [0049]-[0050]);
- comparing said I and Q baseband signals to a reference signal via a complex correlator; detecting a peak of said complex correlator output; and in response to said peak is being above a predefined threshold, indicating that a data packet has been received (Paragraph [0080]).
- Modulating I and Q baseband signals and mapping the modulated I and Q signal to a constellation. (Fig. 3 and paragraphs [0088] and [0089]), wherein unit 310 performs claimed modulating and mapping. This is because

demodulating received signal inherently implies altering (claimed modulating) received I and Q signals and mapping to a constellation in order to accurately recover data sent by transmitter).

Thus, Yang discloses all the limitations claimed, but fails to explicitly disclose removing DC offset and claimed whether the mapping is to PSK constellation.

However, as disclosed by AOAPA, it is well known that in a receiver, DC offset cancellation is required and performed so as to remove the DC offset that arises from local oscillator leakage (Pages 6 and 7 of specification, paragraph [0018]).

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use DC offset cancellation as shown by AOAPA so as to avoid saturating the circuit. (Pages 6 and 7 of specification, paragraph [0018]).

Also, in the same field of endeavor, Katoh shows baseband I and Q signals are mapped to a unit circle on a BPSK constellation (Column 6, lines 41-62 and Fig. 6(a), wherein BPSK de-mapping is interpreted as claimed mapping because BPSK de-mapping inherently implies a mapping to a constellation on a unit circle (see Fig. 6(a)) in order to accurately determine what bit was transmitted, i.e. in order to accurately demodulate the signal. Mapping to a PSK constellation inherently comprises places on a unit circle, which is interpreted as claimed quantized PSK, as per claim 16. Also see column 4, lines 1-10).

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to map the baseband signal to a PSK constellation

as disclosed by Katoh because PSK is a well known technique that may be easily substituted for any modulation technique used by Yang and decoded correctly at the receiver.

3b. Regarding claim 7, refer to rejection of claim 1 above. (Also, see paragraph [0080] of Yang, wherein pattern detection is interpreted as claimed determining of presence of signature).

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of AOAPA and Katoh as applied to claim 1 above, and further in view of previously cited McCarthy, Jr. et al. (US 6704353 B1, hereinafter, McCarthy).

4a. Regarding claim 2, Yang, AOAPA and Katoh show all the limitations claimed, but fail to show amplitude normalization.

In the same field of endeavor, McCarthy further shows amplitude normalization performed by mapping I and Q baseband signals to a quantized phase shift keying (PSK) constellation (Fig. 1 and column 5, line 15 – column 6, line 13 and column 4, lines 30-38, wherein amplitude normalization of the QAM signal is equivalent to claimed mapping to quantized PSK).

Thus, it would have been obvious to a person of ordinary skill in the art to use amplitude normalization shown by McCarthy because it ensures accurate

decoding of received signal by removing effects of channel induced distortion (Column 2, lines 25-44).

5. Claims 3, 5, 6, 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of AOAPA and Katoh as applied to claims 2, 7, 12 and 16 above, and further in view of previously cited Serra et al. (US 5536902, hereinafter, Serra)

5a. Regarding claims 3, 8 and 17, Yang further shows determining if a data packet containing information bits is present (Paragraphs [0088] and [0089].

Thus, Yang, AOAPA and Katoh show all the limitations claimed, but fail to explicitly show claimed conversion of complex to polar value.

However, in the same field of endeavor (of analyzing or identifying data), Serra shows the use of complex to polar co-ordinate converter so as to obtain the magnitude of the polar value and use it for peak detection (Column 22, lines 34-40).

It would have been obvious to a person of ordinary skill in the art to use the complex to polar co-ordinate conversion so as to simplify the peak detection technique.

5b. Regarding claim 5, AOAPA further shows that peak detectors may be employed as envelope detectors (Page 8. paragraph [00021] of specification).

5c. Regarding claim 6, Yang further shows that thresholds are calculated so as to avoid "false alarms" and also shows how exceeding a predetermined threshold implies that predetermined pattern has been detected (Paragraphs [0043], [0080] and [0100]). This is interpreted as claimed comparing to determine correct signature and the predetermined threshold is interpreted as claimed minimum threshold (Paragraph [0080]).

6. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of AOAPA and Katoh and further in view of Serra as applied to claims 8 and 17 above, and further in view of Hennenhoefer.

6a. Regarding claims 9 and 18, Yang, AOAPA and Katoh show all the limitations claimed, but fail to explicitly show whether the received signal may be QAM signal.

However, in the same filed of endeavor Hennenhoefer shows a receiver receiving QAM signal that is converted to QPSK. (Paragraph [0062], wherein transcoder 602 is interpreted as claimed receiver. See Fig. 6).

Thus, it would have been obvious to a person of ordinary skill in the art that the received signal may be a QAM signal as shown by Hennenhoefer because QAM is known to provide greater efficiency for greater number of symbols.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of AOAPA and Katoh and further in view of Serra as applied to claim 3 above, and further in view of previously cited Gunzelmann et al. (US 2001/0028673 A1, hereinafter, Gunzelmann)

7a. Regarding claim 4, Yang, AOAPA, Katoh and Serra show all the limitations claimed, but fail to explicitly disclose the method for calculating magnitude of a value.

In the same filed of endeavor, however, Gunzelmann shows how squares of the magnitudes are calculated (claimed (mag)^2 formula) (Paragraph [0027]).

It would have been obvious to a person of ordinary skill in the art to use the squared magnitude formula because this improves reliability in power calculations (Paragraph [0027]).

8. Claims 11, 19, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of AOAPA and Hennenhoefer.

8a. Regarding claims 11, 19, 21 and 22, Yang discloses in a digital wireless receiver (paragraph [004]), a method of detecting the presence of a data packet (Paragraph [0048], wherein burst detection is interpreted as claimed packet detection) in a received radio frequency (RF) signal comprising the steps of:

- down-converting said RF signal into in-phase (I) and quadrature (Q) baseband signals (Fig. 3 and paragraphs [0049]-[0050]);
- comparing said I and Q baseband signals to a reference signal via a complex correlator; detecting a peak of said complex correlator output; and in response to said peak is being above a predefined threshold, indicating that a data packet has been received (Paragraph [0080]).
- Modulating I and Q baseband signals and mapping the modulated I and Q signal to a constellation. (Fig. 3 and paragraphs [0088] and [0089]), wherein unit 310 performs claimed modulating and mapping. This is because demodulating received signal inherently implies altering (claimed modulating) received I and Q signals and mapping to a constellation in order to accurately recover data sent by transmitter).

Thus, Yang discloses all the limitations claimed, but fails to explicitly disclose removing DC offset and claimed mapping QAM to PSK constellation.

However, as disclosed by AOAPA, it is well known that in a receiver, DC offset cancellation is required and performed so as to remove the DC offset that arises from local oscillator leakage (Pages 6 and 7 of specification, paragraph [0018]).

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use DC offset cancellation as shown by AOAPA so as to avoid saturating the circuit. (Pages 6 and 7 of specification, paragraph [0018]).

Also, in the same field of endeavor, Hennenhoefer shows a receiver receiving QAM signal that is converted to QPSK. (Paragraph [0062], wherein transcoder 602 is interpreted as claimed receiver. See Fig. 6. Mapping to a PSK constellation inherently comprises places on a unit circle, which is interpreted as claimed quantized PSK).

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to map the QAM signal to a PSK constellation as disclosed by Hennenhoefer because it allows for compatibility between QAM transmitters and PSK receivers.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of AOAPA and Hennenhoefer as applied to claim 11 above, and further in view of McCarthy.

9a. Regarding claim 12, Yang, AOAPA and Hennenhoefer show all the limitations claimed, but fail to show amplitude normalization.

In the same field of endeavor, McCarthy further shows amplitude normalization performed by mapping I and Q baseband signals to a quantized phase shift keying (PSK) constellation (Fig. 1 and column 5, line 15 – column 6, line 13 and column 4, lines 30-38, wherein amplitude normalization of the QAM signal is equivalent to claimed mapping to quantized PSK).

Thus, it would have been obvious to a person of ordinary skill in the art to use amplitude normalization shown by McCarthy because it ensures accurate decoding of received signal by removing effects of channel induced distortion (Column 2, lines 25-44).

10. Claims 13, 14, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of AOAPA and Hennenhoefer in view of McCarthy as applied to claim 12 above, and further in view of Serra.

10a. Regarding claims 13, Yang further shows determining if a data packet containing information bits is present (Paragraphs [0088] and [0089].

Thus, Yang, AOAPA, Hennenhoefer and McCarthy show all the limitations claimed, but fail to explicitly show claimed conversion of complex to polar value.

However, in the same field of endeavor (of analyzing or identifying data), Serra shows the use of complex to polar co-ordinate converter so as to obtain the magnitude of the polar value and use it for peak detection (Column 22, lines 34-40).

It would have been obvious to a person of ordinary skill in the art to use the complex to polar co-ordinate conversion so as to simplify the peak detection technique.

10b. Regarding claim 14, Yang further shows that thresholds are calculated so as to avoid "false alarms" and also shows how exceeding a predetermined threshold implies that predetermined pattern has been detected (Paragraphs [0043], [0080] and [0100]). This is interpreted as claimed comparing to determine correct signature and the predetermined threshold is interpreted as claimed minimum threshold (Paragraph [0080]).

11. Claims 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of AOAPA and Hennenhoefer as applied to claims 19 and 21 above, and further in view of Serra.

11a. Regarding claims 20 and 23, Yang further shows determining if a data packet containing information bits is present (Paragraphs [0088] and [0089].

Thus, Yang, AOAPA, Hennenhoefer and McCarthy show all the limitations claimed, but fail to explicitly show claimed conversion of complex to polar value.

However, in the same field of endeavor (of analyzing or identifying data), Serra shows the use of complex to polar co-ordinate converter so as to obtain the magnitude of the polar value and use it for peak detection (Column 22, lines 34-40).

It would have been obvious to a person of ordinary skill in the art to use the complex to polar co-ordinate conversion so as to simplify the peak detection technique.

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vineeta S. Panwalkar whose telephone number is 571-272-8561. The examiner can normally be reached on M-F 8:30-5:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/V. S. P./

Examiner, Art Unit 2611

/Mohammad H Ghayour/

Supervisory Patent Examiner, Art Unit 2611